

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-2. (Canceled)

3. (Currently Amended) A connection structure, comprising:

an optical element including an optical surface;

an optical fiber having a clad and a core, a part of the core being enclosed in the clad, the core having an exposed surface; and

a connecting part that joins the optical surface and only the exposed surface of the core of the optical fiber, the connecting part having a maximum cross section that has a broader region than (1) a connection region between the connecting part and the optical element and (2) a connection region between the connecting part and the optical fiber.

4. (Previously Presented) The connection structure according to claim 3, wherein the exposed surface has an end surface of the exposed surface of the core of the optical fiber.

5. (Original) The connection structure according to claim 3, a refractive index of the connecting part being almost equal to a refractive index of the core of the optical fiber.

6. (Original) The connection structure according to claim 3, the refractive index of the connecting part being greater than a refractive index of the clad of the optical fiber.

7-8. (Canceled)

9. (Previously Presented) The connection structure according to claim 6, an area that surrounds the connecting part being covered by a sealant at the end surface.

10. (Original) The connection according to claim 9, a refractive index of the sealant being smaller than the refractive index of the core of the optical fiber and the refractive index of the connecting part.

11. (Original) The connection structure according to claim 10, the refractive index of the connecting part being almost equal to the refractive index of the core of the optical fiber, and the refractive index of the sealant being almost equal to the refractive index of the clad of the optical fiber.

12. (Canceled)

13. (Original) The connection structure according to claim 3, the connecting part being formed by hardening a liquid material that is hardened by charging energy.

14. (Original) The connection structure according to claim 13, the connecting part being composed of ultraviolet curing resin.

15. (Original) The connection structure according to claim 3, the optical element being at least one of a surface emitting semiconductor laser, a semiconductor light emitting diode, an electroluminescent device, and a photo diode.

16. (Original) An optical module, comprising:

the connection structure according to claim 3, and
a semiconductor chip electrically coupled to the optical element.

17. (Original) An optical transmission unit, comprising:

an optical fiber;
a light emitting element including an emitting plane, and enabling a light that is emitted from the emitting plane into an end surface of the optical fiber;
a semiconductor chip electrically coupled to the light emitting element;
a light receiving element including a plane of incidence, and introducing a light that is emitted from the other end surface of the optical fiber through the plane of incidence; and
a semiconductor chip electrically coupled to the light receiving element;

the connection structure according to claim 3, the connection structure including at least one of a connection structure between the light emitting element and the optical fiber, and a connection structure between the light receiving element and the optical fiber.

18-27. (Canceled)

28. (Previously Presented) The connection structure according to claim 3, wherein the connecting part secures optical transmission between the optical element and the optical fiber without precise alignment of the optical element and the optical fiber.

29-30. (Canceled)